Codes of Ethics/Conduct for Computer Societies

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Published in:
Technology and Ethics, A European Quest for Responsible Engineering

Publication date:
2001

Document Version
Publisher's PDF, also known as Version of record

2.2.4

CODES OF ETHICS: CONDUCT FOR COMPUTER SOCIETIES

The Experience of IFIP

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Remembering the debates started in 1988 within IFIP *(International Federation for Information Processing) about a suggested international 'Code of Ethics' (or/and of Conduct?), lessons may be derived in terms of ways of building up a code, as well as in terms of claims of respect for cultural, social and legal environments. Further steps such as the recommendations of* IFIP *1994 General Assembly may also enlighten us as to how the members of an international Ethics Network need to act and support each other in creating 'spaces for discussion' where the ethical debate is permanently promoted and supported.*[1]

IFIP 1988-1992 Debates

The first official consideration within IFIP, at the level of its General Assembly (GA), of a proposal for developing an international Code of Ethics dates back to 1988, when the New Delhi General Assembly

[1] This paper extends one which has been published under the title: 'IFIP Framework for Ethics', in *Science and Engineering Ethics* (1996)2, pp. 155-165, A special Issue on Global Information Ethics. The author is indebted to Opragen Publications, and particularly to Merilyn Spier, Publishing Manager, for having accepted its partial reproduction. The same thanks and acknowledgments go to Simon Rogerson and Terrell W. Bynum, Directors of the Centre for Computing and Social Responsibility, de Montfort University, Leicester, UK, Guest Editors of that Special Issue which includes a selection of ETHICOMP'95 papers.

decided to investigate the desirability of creating such a Code.[2] Previous work had been done in the late seventies within Technical Committee 9 (TC9, Computers and Society) and its Working Group 9.2 (WG9.2, Social Accountability) when the question was also on the agenda of the Council of Europe.[3]

The reason for this project is not very clear, or at least, it cannot been found explicitly in the IFIP archives. The project was initiated by George Glaser, IFIP Vice-President at the time, and also Chairman of the Activity Development Board. In a circular document of September 1988, 'Initial Project Proposal for an IFIP Code of Ethics,' Hal Sackman explains the provisional scope of the project: 'IFIP rules and bylaws list the aims of IFIP as essentially a) to promote Information Science and Technology; b) to advance international cooperation in the field of Information Processing; c) to stimulate research, development and application of Information Processing in science and human activity; d) to further the dissemination and exchange of information on Information Processing; and e) to encourage education in Information Processing. In addition to the above aims, or as corollaries to the above aims, IFIP also strives to achieve the further challenging goals of a) social responsibility, particularly facilitating the constructive computerisation of developing nations, and b) aspiring to earn recognition as the world leader in international developments in information processing on the basis of IFIP's demonstrated merit and excellence. These two corollaries to IFIP's established aims are major focal points bearing directly on the scope of IFIP ethics.' We could say that it is one of the usual and well recognised goals of many of the codes, namely 'to enhance the profession's reputation and the public trust, and to preserve entrenched professional biases.'[4]

After the New Delhi General Assembly, an ethics survey questionnaire was administered 'to approximately 100 IFIP professionals'[5]

[2] *IFIP-Newsletter* 6(March 1989)1.

[3] Herbert MAISL, 'Legal Problems Connected with the Ethics of Data Processing,' Study for the Council of Europe (CJ-PD[79]8), Strasbourg, August 29, 1979. Secretariat Memorandum (CJ-PD[81]8), and the last report (CJ-PD[82]19) with the Minutes of the Meeting (CJ-PD[82]31).

[4] M.S. FRANKEL, 'Professional Codes: Why, How and With What Impact?' in *Journal of Business Ethics* 8(1989).

[5] This is the wording of the 'IFIP Ethics Questionnaire Package' of November 28, 1988, which I found back in my own archives. Later, in another presentation, Hal Sackman wrote: 'to 80 national computer societies, IFIP officers and international affiliate organizations worldwide' (See, for instance, H. SACKMAN, 'A Prototype IFIP Code of Ethics Based on Participative International Consensus' in C. DUNLOP and R. KLING

which resulted in a first draft contemplating four major areas of ethics: individual professional ethics, multi-national organisational ethics, international legal informatics ethics and international public policy ethics. This first draft was presented at the IFIP Technical Assembly (TA) and then to the General Assembly in San Francisco, September 1989. The Minutes of the General Assembly stated: 'Mr. Sendov, President, advised that Mr. Sackman had presented his Interim Report to Technical Assembly and it was noted that a great deal of work had been carried out since the Geneva Council Meeting. It was felt that the project should go ahead and Technical Assembly had recommended Mr. Sackman to prepare a revised, shortened version for distribution to a broader audience.' It was also suggested to present it to a larger and more diversified part of the IFIP community. The revised draft was then published in the IFIP-Newsletter for comments and rating.[6]

Intensive discussion took place as soon as the revised version circulated within the national Societies, Technical Committees (TCs), Working Groups (WGs), and Special Interest Groups (SIGs) of IFIP. One cannot say that enthusiasm was shown towards the proposal, and some national Societies were opposed strongly to any international standard on the subject. IFIP Technical Assembly and General Assembly became nervous, asked Technical Committee 9 to stimulate the debate. The Minutes of Buenos-Aires General Assembly, 1990, regarded Dr. Sackman's 'revised preliminary IFIP Code of ethics' as a good basis for discussion. (...) The General Assembly, in order to analyze the acceptance and relevance of this 'Draft IFIP Code of Ethics' as it was now to be called, also asked its Member Societies as well as its organisations, TCs, WGs, SIGs, to discuss this paper in detail. Among others, aspects of education to and enforcement of ethical behaviour should be evaluated in the face of the diverse economic, social and cultural backgrounds.' IFIP General Assembly requested the commitment of Technical Committee 9 in close cooperation with interested TCs and WGs.

The Minutes of the Trondheim Council Meeting in 1992 are clear: 'The status of the 'IFIP Code of Ethics' has been discussed. It appeared that some Member Societies had responded rather negatively to the existing proposal. Technical Committee 9 had therefore agreed to develop a reference frame including some general state-

(eds.), *Computerization and Controversy, Value Conflicts and Social Choices*, San Diego, Academic Press Inc., 1991, 1st edition, p. 698).

[6] *IFIP-Newsletter* 6(December 1989)4.

ments. There would be a discussion on the subject during Congress 92 following which Technical Committee 9 would report to the next Technical Assembly.'

IFIP World Computer Congress 1992, in Madrid programmed an open session. Current IFIP President, Academician Blagovest Sendov, personally chaired that session where no less than 12 panellists debated the opportunity to go further with the proposal. Many IFIP General Assembly representatives and most of the IFIP officers were present. A special brochure had been prepared by WG9.2, with a discussion paper and different codes of national Societies. Moreover, papers expressing concerns about the topic were gathered in one of the streams of the conference and may still be found today in the IFIP World Congress '92 Proceedings.[7]

The statements of the panel were sometimes sharp:

- 'The phrasing smacks rather of motherhood.'
- 'There is no international mechanism to deal with such topics'.
- 'We are doubtful about any pronouncement on ethics which lacks any obvious policy mechanism other than international opinion'.,
- 'We have considerable reservation because of the differences between cultures, traditions, and legal frameworks within the international community, and hence we doubt that a universal code of ethics can be written.'
- 'We consider it necessary to reconsider the draft Code from several perspectives: content, format, process'.

(The Chair, mindful of the arguments, concluded:) 'The time is not ripe to adopt an IFIP international Code!'

Subsequent IFIP Technical Assembly and General Assembly, in Toledo, September 1992, decided to thank the author of the 'draft Code', not to consider it any longer as an 'IFIP Draft Code' and 'to set up an IFIP Ethics Task Group to prepare a document on *Guidelines for Codes of Ethics and Professional Conduct*, closely collaborating with IFIP Member Societies and renowned IT organisations.' Technical Committee 9 was responsible, and asked one of the authors of this paper to chair that Task Group, with some stringent milestones and deadlines including the production of a Handbook within 15 months and a final report to the Technical and General Assemblies in 1994.

[7] 'Ethics of Computing: Information Technology and Responsibility' in *Information Processing 92*, vol. II: *Education and Society*, R. AIKEN (ed.), Proceedings of the IFIP 12th World Computer Congress (Madrid, September 7-11, 1992), Elsevier Science Publishers B.V. (North-Holland), 1992, pp. 344-373.

A New Process of Discussion

What appeared clearly in this process is the deep refusal of an international code. Why? After a long time of reflection, we think one of the main reasons was that it was impossible to find a procedure for enforcement. We shall elaborate on this in the conclusion. Going through the minutes of IFIP meetings and notes of that period, we are convinced the discussion was not first about the content itself, but about the principle of having an international code. Several times, it is repeated that it would be better and sufficient to provide the different national Member Societies with a 'set of guidelines' in a format they could consider for local adaptation.

Among the causes of the failure in the process of the past years is also probably inadequate understanding of the IFIP structure: IFIP is an international organisation made up of national organisations. With the exception of some individual members, who are admitted in recognition of relevant contributions, and a few honorary members awarded for life on the basis of exceptional merit, the membership within IFIP – be it full (one per country), corresponding, or affiliate – is available only to organisations. The 'ethics survey among IFIP professionals' probably neglected that fact, getting the feedback of the real members when the whole affair was nearly completed.

Interestingly, at the same period, a rather similar debate took place within the International Federation of Accountants, but resulted in another way. It issued its first code in 1990 and a revised version in 1992.[8] But a paper in the *Journal of Business Ethics* deeply questioned the capacity of such a code for having a real impact on local constituencies. The analysis of the authors is made essentially on the basis of cultural and socio-economic constraints: 'International professional guidelines are often ethnocentric; they reflect the ethical and cultural standards of the developed countries whose organisations are more influential in writing them...'[9] We are today convinced that many were not far from thinking the same about the Draft IFIP Code.

[8] The version which is now available on the Internet is a January 1998 revised version: (http://www.ifac.org/StandardsAndGuidance/Ethics/CodeOfEthicsForProfAccnts.html)

[9] J.R. COHEN, L.W. PANT, and D.J. SHARP, 'Cultural and Socio-economic Constraints on International Codes of Ethics: Lessons from Accounting' in *Journal of Business Ethics* 11(1992), pp. 687-700. This paper is based on the 1990 'IFAC Guideline on Ethics for Professional Accountants'.

The Ethics Task Group decided to start a new process and to get input from all the IFIP Member Societies, and its working bodies namely, its Technical Committees, Working Groups and Special Interest Groups. A brochure for discussion was sent to the 47 Member Societies, 11 TCs, 71 WGs and 2 SIGs.[10] The response was very positive: 30 national Societies, and 17 TCs and WGs were involved in the process at one point or another, collaborating or manifesting interest. Some of them provided the Task Group with additional material or more elaborated answers.

As a result of this cooperative process with the Member Societies, we analysed 31 Codes: 21 from 13 IFIP national Societies, 3 from 2 IFIP Affiliate Members (Regional Societies), 6 from other Computer Societies, and the Draft Code which had been submitted to IFIP previously. The list of the Societies and their Codes is given in Annex.[11]

Other Codes were also received, but have not been included in the analysis because they were restricted to a specific field, such as privacy or health care, or because the status of the Society was not considered to be 'national'. The Task Group was also provided with tentative proposals of oaths for informaticians. Those supplementary documents were as follows:

- Standards of Computer Science Deontology of CITEMA (Centro de la Informática, Telemática y Medios Afines), Spain.
- Health Informaticians' Deontology Code, Greece.
- CPSR (Computer Professionals for Social Responsibility) Proposed Privacy Guidelines for the National Research and Education Network (NREN) and for the National Information Infrastructure (NII), USA.
- Oaths: An Engineer's Hippocratic Oath, An Oath of An Informatician.

[10] *IFIP Information Bulletin* (January 1994)25. General Assembly of Hamburg (September 1994) admitted new Member Societies which, of course, were not questioned at the time we started the new process. There are now 49 full, associate, and corresponding Members and 11 affiliate (regional or international organizations) Members. See: *IFIP Information Bulletin* (January 1999)29.

[11] Other IFIP national Member Societies have now adopted a code. This is the case, for instance of the Information Processing Society of Japan (http://www.ipsj.or.jp/english/codeengl.html) enacted since May 20, 1996; or of the Finnish Information Processing Association (http://www.ttlry.fi/): the English translation is available on request at (heidi.lind@ttlry.fi); the Nederlandse Vereniging van Registerinformatici (VRI) updated its own in 1997 (http://www.vri.nl/info/gedraguk.htm); the Hungarian John von Neumann Society (http://www.njszt.iif.hu/) – the text is unfortunately not available in English; the Hong Kong Computer Society (http://www.hkcs.org.hk/ethics.htm); and the Malaysian National Computer Confederation (http://www4.jaring.my/mncc/code.htm). Most of the IFIP Member Societies Codes are available at (http://courses.cs.vt.edu/~cs3604/lib/WorldCodes/WorldCodes.html).

Analysis of the Codes

The Content of the Codes

The first thing which is noticeable resides in the titles of the codes themselves: they are called either 'Codes of Ethics' or 'of Conduct', and more rarely 'Ethical Guidelines' or 'Standards of Conduct'. Sometimes the words ethics and conduct are used together, without really distinguishing the content or considering the rules of conduct as applying the principles as given in the ethical rules. Even when comparing the codes which use only one of the words, no significant content difference can be found between them, inducing confusion and controversy about the meaning of 'ethics' and 'conduct': there are Societies which prefer the wording 'ethics' when applied to the obligations due to the public, and 'conduct' when considering their members as belonging to a 'profession'; but there are others which totally avoid the word 'ethics' since they think that codes must treat only professional matters, leaving to individuals their own appreciation of what ethics may mean! This raises a fundamental question to which we shall come back later, but it shows that the underlying ethical theories are not always made explicit.

It became obvious rather quickly that the codes could be analysed easily according to a rather simple grid of analysis. Most of the rules or of the statements of the codes are formulated along the same pattern: 'X is responsible to Y for Z', where X is the 'Subject', Y the 'Reference', and Z the 'Field of responsibility'.

X is responsible	to Y	for Z
↕	↕	↕
Subject	Reference	Responsibility field

Here are the major findings. Full details are given, along with the codes themselves, and IFIP-GA recommendations, in the 'IFIP Ethics Handbook'.[12]

[12] See J. BERLEUR and M. D'UDEKEM-GEVERS, 'Codes of Ethics or of Conduct Within IFIP and Other Computer Societies' in J. BERLEUR and K. BRUNNSTEIN (eds.), *Ethics of Computing: Codes, Spaces for Discussion and Law*, London, Chapman and Hall (now Kluwer), 1996, pp. 3-41.

As for the Subject being concerned, most of the time s/he is an 'individual subject' (21 times/31), sometimes specified as a 'computer professional' or a 'voting member', or a 'leader', or a 'teacher'; but on occasion the Subject is an 'institutional subject' like a 'company' or an 'organisation', or a 'computer society', etc. Of course, this question has to be linked to the membership structure of the computer society, since the rules may not have the same characteristics of enforcement depending on the position of the Subject.

Analysis of the rules also gives a very good insight into the References of the rules inside the codes. Members of computer societies recognise their responsibility equally towards the 'public' (23 times/31), the 'organisations', and mainly the 'clients and the users' (25/31), and the 'profession' if not the 'computer society' itself or, sometimes 'oneself' (24/31). Less frequently, within the organisation, a specific responsibility towards the employer, or towards other employees or towards colleagues, is also mentioned (respectively 11, 8 and 9/31). In our opinion, the responsibility towards the clients and the users was to be expected. The recognition of a responsibility towards the public or society as a whole is more remarkable and demonstrates the fact that computers and information technology have influenced attitudes towards our social life.

The responsibility field is, of course, the most developed part within the codes. Five main categories emerge and regroup the different wordings as adopted by the different computer societies:

- respectful general attitude,
- personal (or institutional) qualities: conscientiousness, honesty and positive attitude, competence and efficiency,
- promotion of information privacy and data integrity,
- production and flow of information,
- regulations.

Let us examine these five main categories in more detail:[13]

- *Respectful general attitude* (/30)

  This attitude includes: respect for the interests or rights of the people involved (15), respect for the prestige of the profession

[13] *Ibid.* We give in parentheses the number of codes concerned by the mentioned wording.

(11), respect for the interests or rights of the public (10), and respect for the welfare, health of the public and for the quality of life (10). Sometimes it also includes: respect for the reputation of the computer society (8), respect for the quality of life of the people involved (6), respect for the public in general (6), respect for the environment (6), and respect for the differences of the public (4).

- *Personal (or institutional) qualities, such as conscientiousness, honesty and positive attitude, competence and efficiency* (/30)

  In practice, the terms conscientiousness and honesty are frequently encountered under the expressions acceptance of responsibility (19) and integrity (26). Moreover, appeals to respect for requirements or contracts or agreements (14) and to conscientious work (11) are also frequent. Other topics relating to conscientiousness and honesty are: professionalism (7), credit for work done by others (6), good faith or goodwill (4), concern to meet overall objectives (3), and the courage of one's convictions (1). With regard to the expressions competence and efficiency, two other terms are very common: professional development and training (19) or limitation of work to the field of competence (18). Two others are also worth noting: general competence (13) and effectiveness or work quality (12).

- *Promotion of information privacy and data integrity* (/31)

  Confidentiality (22) is required by nearly all the general codes of the IFIP societies (13/15). Privacy in general (14) and respect for property rights (12) are appealed to quite often. Three other topics, no computer crime, no information piracy or misuse (7), data integrity (6) and data minimisation (2), are less frequent.

- *Production and flow of information* (/31)

  The majority of the codes (23) requires flow of information to involved parties or people. Information to the public (16) is also insisted upon. Half the whole set of codes calls for comprehensive information (14). Several codes also ask for the production of tests, evaluations, results or specifications (7) or for the flow of information from the involved parties or people (7).

- *Attitude towards regulations* (/30)

  Regulations do not appear as a major theme. Less than half the codes requires respect for the code (13), respect for the law (13), and respect for IT and professional standards (12).
  Few codes refer to development of standards (5), of the law (2), or of the code itself (1); some consider sanctions against a breach of the code (9). Regulation of the code itself is often taken into account outside the code, in the procedures.

The Environment of the Codes

An analysis of what we have called the 'environment' of the codes has also been performed. Using the available information, we have tried to compare the sanction levels, the disciplinary procedures, the process of updating the codes, the status of the different computer societies, and their membership structures.

Sanctions and Procedures

The levels of sanctions are generally in four categories: caution or warning, reprimand, suspension, and exclusion or forfeiture, revocation of membership.

Disciplinary procedures normally involve no more than five steps: complaint, investigation (eventually with a suggested reconciliation), hearing process and decision, appeal process, and publication of opinion. Some Societies have also support procedures for members.

Update

The updating of the codes is not done on a fixed date basis: codes may be reviewed 'regularly' or 'when necessary'. Some Societies have no formal mechanism for updating. Other Societies leave it up to the wisdom of a specific committee.

Status and Membership

The status of the Societies varies from a Society 'incorporated by charter granted by the Crown' (BCS: British Computer Society) to a 'registered Society' according to the specific laws of a country. The status surely has an influence on the membership structure, or at least on the process of selection of the 'full members'.

With regard to membership structure, the differences are such that no comparison is worth doing. As stated earlier, we generally find 'individual members', but there are Societies which admit also institutional members (7/18) from education or business, for instance, not always as full members but as affiliates. A distinction is frequently made between 'members entitled to vote' and members 'not entitled to vote'. Within the first group, there is a panoply of denominations: voting, ordinary, regular, individual, full, professional, honorary members, fellows, etc. While within the second, some denominations overlap with the first category, such as fellows, etc. but we also find a wide range of denominations: associates, affiliates, student members, overseas members, etc. We have found Societies which establish no less than nine grades of membership! It is not clear that members are bound by codes in the same manner, although their grades differ. Some Societies require the signature of the members, only if they are 'ordinary members' (AICA: Associazione Italiana per l'Informatica ed il Calcolo Automatico).

Remarks Deriving from the Analysis

The codes show a rather fine convergence as far as their content is concerned. This means that for ethical debates, they offer a basis for discussion on which an agreement may be easily reached. They also offer an already experienced 'framework on ethics' which may help to increase awareness and maintain openness in a dialogue to be deepened. However, the computer-related ethical issues do not seem to be sufficiently elaborated and taken into account. At the most, two out of the five 'responsibility fields' are directly linked with information and communication technology. The others could also be applied to other disciplines and professional associations. Of course, some features may be nuanced when applied in the computer context, such as for instance the 'respectful general attitude towards the interests and rights of involved people' where one could interpret it as determining a kind of 'information right'. We shall see hereafter that the situation is not far from that encountered in the Societies of Civil Engineers.

Codes cannot be too precise, because procedures for enactment are often lengthy. Moreover, they must be short if we want them to be read and applied: long codes are at risk of being inefficient. The

different Societies rarely mention that they could offer their members advice in using and interpreting the Code or how to deal with ethical issues at stake. A balance has to be found: some associations have supplemented the code itself with comments, explanatory notes or guidelines to assist members 'in dealing with the various issues contained in the code' or 'helping them in making decisions in their professional work' (ACM: Association for Computing Machinery, USA, Preamble).

Weaknesses must be pointed out. When looking at the list of the national Member Societies, we must recognise the prominent Anglo-Saxon representation, and even the more restricted zone of English influence. Less developed countries outside that zone are clearly underrepresented. Most probably, this is due to different cultural and legal tradition. The Anglo-Saxon world is more open to the role of professional associations and their self-regulation. Continental Europeans, Mediterraneans and Latin Americans are more confident in the law!

The enforcement procedure is all but clear and evident. There are complaint and disciplinary procedures, often rather complicated, but among the 13 IFIP national societies, for instance, only 5 have more than one single sanction, i.e. revocation / exclusion. Otherwise, the commitment of the individuals towards the code is not always an *explicit* condition of membership. These questions of enforcement and sanctions seem more and more crucial, with the current trend toward self-regulation.

Participation of people in drafting provisions seems also rather weak. When we say people, we do not mean only the members of the association or of the national Society, but also the public. Self-regulation must be developed with the participation, as large as possible, of the people concerned – this is a requirement of democracy.[14] There are 'boundaries' between the profession and the society at large. Codes are worded in such a way that they would require the public to be involved in the process of deciding the norms.

'As a member of X, I will contribute to society and human well-being'; 'Members shall in their professional practice have regard to basic human rights and shall avoid any actions that adversely affect such rights'; 'We, members of Y, (...) agree to accept responsibility in

[14] J. BERLEUR, 'Self-Regulation and Democracy: Choice and Limits?' in S. FISCHER-HÜBNER, G. QUIRCHMAYR and L. YNGSTRÖM (eds.), *User Identification and Privacy Protection, Applications in Public Administration and Electronic Commerce*, Proceedings of the joint IFIP-WG8.5 and WG9.6 Working Conference, Stockholm 1999, DSV – Department of Computer and Systems Sciences, Stockholm University/Royal Institute of Technology – on behalf of IFIP, Report Series 99-007, ISBN 91-7153-909-3, pp. 1-19.

making (...) decisions consistent with the safety, health and welfare of the public, and to disclose promptly factors that might endanger the public or the environment', etc.

One may easily understand that well-being, basic human rights, health, welfare, environment, etc. could benefit from the participation of those affected, even potentially, if we want the meaning of such 'words' not to be restricted by professional interests.

Finally, as we have already emphasised, the codes examined show too weak a tie to the really emergent hot issues of the profession. We shall come back to this question.

A Short Comparison with Engineering Ethics

The WWW Ethics Center for Engineering and Sciences is one of the centers providing us with course materials and instructional resources, bibliographies, lists of professional societies with their ethical codes and guidelines, research outlines, ethics centers collecting and making information available to all. It is sponsored by the USA National Science Foundation, formerly located at MIT (Massachusetts Institute of Technology), then at the Case Western Reserve University, and now apparently 'independent'.[15] This site is a 'must' in ethics for engineering and science. Above all what we just mentioned, there is an interesting list of 'keywords in science and engineering ethics', subdivided in five categories: general ethical issues, issues in educational and workplace settings, research, ethical courses, and legal. This kind of list is interesting because it represents, as for every classification, a 'state of the art'. It shows where the preoccupation of people in science and engineering could be.

Surprisingly, we found in this list many words which we had found earlier in the codes of IFIP for computer scientists and professionals. Restricting ourselves to the first two mentioned categories, the main words are: privacy and confidentiality (including trade secrets, databases, medical information,...), general ethical issues (ethics and the law, deception, distrust, accountability, ...), safety, competence, environmental issues, fraud, bribes, conflicts of interest, professionalism, copying, ethical responsiveness of organisations (harassment, workplace relationships, communication, gossip ...), diversity (culture, gender, ...).

[15] Online Ethics Center for Engineering and Science: (http://ethics.cwru.edu) or (http://www.onlineethics.org)

Two objections may come to mind. First, a list of key words does not give a hierarchy of issues: one item may be encountered in real problems only once whereas the other may be encountered 100 times. Second, many of the issues mentioned are not really linked to science and engineering, as we noted for computing. This last objection shows one of the main difficulties: How can we remain sufficiently general, while being sufficiently specific at the same time? We would not be honest not to add that the www Ethics Center also gives a disciplinary index by field of interest, i.e. by subdiscipline in engineering, such as aeronautical, biomedical, civil/structural, chemical, electrical, environmental, materials, mechanical, nuclear, ... engineering. However, on going further, you are not rewarded by discovering substantially new things. So, for example, when looking at the content of the subdiscipline Computer Science, references are given to privacy and cryptography, intellectual property issues, social impacts of computers, safety critical systems, unfair business practices, and other computer science related topics.

A Confusion Between Ethics and Conduct?

Let us come back on the debate about 'ethics' and 'conduct'. We already said that there is a confusion in the titles of the codes, if not in the mind of their authors, since the words are not really differentiated, and that sometimes there are Societies which seem to prefer the wording 'ethics' when applied to the obligations due to the public, and 'conduct' when considering their members as belonging to a 'profession'. We shall see that the IFIP General Assembly will also propose that the codes of ethics be seen as 'mission statements' and the codes of conduct as dealing with a more professional content.

The question is not simple, since IFIP, as an international body, must take into account the different ethical traditions which lead its different Member Societies. It is quite clear that the Anglo-Saxon world refers to consequentialism and utilitarianism, which leads to give to the word 'ethics' a quite different content than in a world where the deontological or Kantian approach is prevalent. Deontology seems to be more normative and has an ethical content which is more decisive.[16]

[16] For a short introduction to the different theories of ethics, see for instance: D.G. JOHNSON, *Computer Ethics*, Englewood Cliffs, NJ, Prentice-Hall, 1994 (2nd edition), pp.16-36.

One must admit – and that becomes more obvious than ever today – that self-regulation (to which the codes belong) is motivated by the desire to avoid a greater degree of statutory regulation or to curb government regulation.[17] Ethics in those conditions is becoming more problematic.

So, in order not to fall in the trap of confusion and ambiguity, and to cope with the diversity of theoretical approaches of ethics, we suggest focusing on a more procedural one, as suggested by Jürgen Habermas in his 'Discourse Ethics' or by Marc Maesschalck in his 'Ethics of convictions,' where a procedure for exchanges which recognise the differences but also what could be called an horizon of universalization for the norms is defined.[18] This approach takes longer, but it also means a re-appropriation of everyday life, including the professional life as well as the differences of cultural heritage, in the field of ethics. Applied ethics may cover so many domains and questions that there is a need for getting all the required parties involved. Ethics in the economic and secularised world has taken a predominant position since other discourses seem to have lost their own persuasive meaning, if not their legitimacy. The 'question of meaning' is coming back to the forefront of social life, when there are people willing to confine it in the private sphere. In our age of globalisation, it cannot be examined in another way than on a world-wide scale.

Entrepreneurs are facing day-to-day problems of their firm, including social problems raised out of their aims and aptitudes to cope with. They discover, or re-discover, in daily contacts, their own commitment to create meaningful situations for their employees and workers. If ethics does not seem a major preoccupation among those who govern the world at the level of financial globalisation, the situation is not the same at the level of firms and organisations which face people in search of understanding their own life. The profession may be a level where daily contacts are appreciated. Is it not one of the reasons why ethics is becoming predominant on that scene? However,

[17] One may refer to the Press releases at the creation of the Global Business Dialogue, an electronic commerce initiative set up by top executives at 17 companies (see http://www.gbd.org/library/news.htm)

[18] J. HABERMAS, *De l'éthique de la discussion*, Paris, Cerf, 1992. [Orig.: *Erlauterungen zur Diskursethik*, Engl. Transl.: *Justification and Application: Remarks on Discourse Ethics*, Cambridge, MA, The MIT Press, 1993]. M. MAESSCHALCK, *Pour une éthique des convictions. Religion et rationalisation du monde vécu*, Brussels, Publications des Facultés Universitaires Saint-Louis, Coll. Philosophie, 1994, p. 376.

one may call it fair conduct, when another will prefer to speak about ethics. The most important thing is to provide meaningful insights to life in search of understanding, and places where discussion is promoted and open, and where ethical issues are not obliterated.

Recommendations of IFIP General Assembly

On the basis of the work undertaken by its Ethics Task Group, mandated by its General Assembly, IFIP made recommendations to its Member Societies (Hamburg, September 1994). Of course, such recommendations cannot be compulsory, but have to be regarded as the product of an extensive consultation and as resulting in a better appreciation of the historical, cultural, social, political and legal diversity of these Member Societies. The IFIP position has been spelled out as follows: 'IFIP regards as essential that, when wanted and needed, codes of ethics or of conduct should always be developed and adopted within the Member Societies themselves.' This meant that IFIP is not contemplating an IFIP international code.

IFIP recommended that a careful distinction be made between 'Codes of Ethics' and 'Codes of Conduct', since it appeared in the analysis and comments that the former are more often oriented towards the public and the society as a whole, while the latter seem to be related more directly to the 'computing profession'. Codes of ethics could be seen as 'mission statements' of Computer Societies, providing visions and objectives in relation to their public mission and anticipating the issues at stake in a computerised world or in an information society. Codes of Conduct would have to deal with those issues, in the specialised fields of the profession. Moreover, certain authors who have been working on the 'ethics of computing' for some time think that 'the rules of conduct have to reach, beyond the well-structured body of computer scientists, the larger circle of computer users. We must shift from a deontology of informaticians to an objective deontology of informatics under the control of the law.[19]' The question is then raised of the role of the codes in society: do they have to anticipate the law, to supplement it, or be controlled by it? This is explicitly linked to one of the very sensitive questions of today as we already mentioned, namely the question of 'self-regulation'.

[19] H. MAISL, 'Conseil de l'Europe, Protection des données personnelles et déontologie' in *Journal de Réflexion sur l'Informatique*, (Août 1994)31.

As far as the content of the codes is concerned, IFIP suggested, as a first step, an appreciation of the different responsibilities of the 'members' of its Member Societies and of the main rules which are already mentioned in the majority of the existing codes, noting how they could be adapted or included when writing or updating one's own code. It is interesting to stress again that the different existing codes state that the responsibilities of the members extend from the profession itself to the society as a whole. It is not easy to understand how it can be applied realistically, but this is not a reason for avoiding such a statement or provision which could encourage a dialogue between the Societies and the public.

As mentioned earlier, codes of IFIP Member or Affiliate Societies should address computer-specific ethical issues in more depth. IFIP and computer scientists should provide their expertise in dealing with threats and dangers which appear daily in specialised fields. Specific computer-related ethical issues have been listed by the Ethics Task Group, from current case studies, experiences, literature, workshops, or recommendations drawn up by organisations such as the Council of Europe in the domain of 'computer crime' for instance.[20]

The list of computing ethical issues may be long: one may easily imagine issues related to stealing, sabotaging, harassing, etc. Others stress computer abuses, such as alteration, hacking, piracy, introducing viruses, and so on. One cannot ignore all the issues linked to what is handled by the European Commission as a 'Promoting best use, preventing mis-use' Action Plan where the preoccupation is to protect children and human dignity from all illegal or harmful material.[21] Others, in the framework of the Internet and of electronic commerce will stress intellectual property rights, copyright, ownership of data, etc.[22] Other issues have also been examined for a long time in the field of 'Computers and Society' and have been considered as controversial in the computerisation processes. They cannot be forgotten when examining today's computer-related ethical issues, which include

[20] Council of Europe, *Computer-Related Crime*, Recommendation N° R(89)9 on computer-related crime and final report to the European Committee on Crime Problems, Strasbourg, 1990.

[21] Action plan on promoting safe use of the Internet: (http://www2.echo.lu/legal/en/best_use/best_use.html)

[22] J. BERLEUR, 'Final Remarks: Ethics, Self-Regulation and Democracy' in *Ethics of Computing: Codes, Spaces for Discussion and Law*, op. cit.

what was formerly classified as the social, economic, managerial, political, cultural, philosophical consequences of computing.[23]

These lists show that there is still a long way to go in order to reach a satisfying state of the art where these problems will be handled thoroughly. However, it is the duty of computer societies to work on them and propose solutions which will really protect society, as well as the public and the computer profession. Are codes the most suitable way to meet the expectations? This is another question which will not be treated here.

Since the work to be faced is challenging, IFIP has recommended creating 'spaces for discussion' and has established some specific procedures to meet this challenge. To 'create spaces for discussion' on ethical issues is an urgent task for all the constituencies concerned which deal with information and communication technology in order to study specific computer-related issues more deeply. The IFIP General Assembly has proposed different objectives for such spaces including: 'submitting, through the *IFIP Newsletter* for instance, specific case studies, encouraging members to submit their own responses; making available all the up-to-date codes of IFIP national societies, with related pointers to existing documentation for further research; publishing, as foreseen in the European Directive on data protection, significant codes;[24] providing a forum –

[23] One may think of:

- the impacts on work organisation and working conditions; employment; changes in qualification and skill needs; the place of women; human resources at work;
- the rationalisation of managerial, professional and technical work; involvement of users namely in systems design; security and reliability;
- the role of ICT in the process of global economy;
- the increasing gap between developed and developing countries;
- the distribution of power; decision-making procedures, centralisation-decentralisation; interactions between the public and computer-using organisations; increased surveillance in automated office; public and private databases; consequences for democracy, privacy and civil liberties;
- the impact on health care, on households, on education, morale and culture;
- the predominant paradigm of instrumental reason; influence on perception of oneself, etc.

See, for instance, J. BERLEUR, A. CLEMENT, T.R.H. SIZER and D. WHITEHOUSE (eds.), *The Information Society: Evolving Landscapes. Report from Namur*, Springer Verlag New York-Heidelberg and Captus University Publications, 1990; R. KLING (ed.), *Computerization and Controversy: Value Conflicts and Social Choices*, San Diego, Academic Press, 2nd ed., 1996; C. HUFF and T. FINHOLT (eds.), *Social Issues in Computing: Putting Computing in its Place*, New York, McGraw-Hill, 1994, p. 726.

[24] See particularly art. 27: 'The Commission may ensure appropriate publicity for the codes which have been approved by the Working Party.' (Directive 95/46/EC of

under the Chairmanship of the IFIP President – where discussion could be raised about harmonising codes of Societies, in order to prevent restrictions in one country being prejudicial to another; participating in international *fora* where similar questions are treated; assisting in the resolution of conflicts which could arise between national codes that are completely different; etc. Therefore, IFIP will collect, compare and help disseminate knowledge on developments in the national Societies. In the case of controversies, it will also advise on the resolution of problems in projects with professionals from countries which have very different codes.'[25]

Moreover, the IFIP General Assembly has requested the establishment of a Special Interest Group (SIG9.2.2: IFIP Framework on Ethics of Computing) which has been accepted by its Technical Committee 9 and WG9.2 and whose role would be to act as a catalyst within IFIP to collect case studies, new codes and comments, and disseminate all relevant information so that the national and regional Member Societies may develop a climate sensitive to ethical questions which could arise world-wide. SIG9.2.2 will regularly inform IFIP about essential achievements and progress in the international discussion, and discuss and suggest solutions for emerging problems.

IFIP does not pretend to have any monopoly in the questions we have discussed. It just assumes its role as the widest international organisation of computer scientists. It knows that others have also started a process of re-assessing their role with regard to ethical issues. There are Universities, for instance, which have established their own 'policies'.[26] There are also other ways to meet the requirements of higher standards of ethics in our society: international guidelines, public policies, legal instruments, etc. The international guidelines may provide statements which act as reference documents or a basis for the development of legal instruments in particular jurisdiction. Public policies may incorporate aspects of acceptable behaviour, practices and standards. Legal instruments are generally the most enforceable, provided they are drafted correctly and the courts are sufficiently qualified to assess the matters brought

the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data, Brussels, *Official Journal of the European Communities*, 23.11.95, No L/281/31-50).

[25] See 'Recommendations from IFIP General Assembly, Hamburg September 1994' in *Ethics of Computing: Codes, Spaces for Discussion and Law*, op. cit.

[26] J.W. CORLISS, 'Analysis of Universities Policies', in *ibid.*

before them. We are in favour of the legal instruments, but as said earlier, ethical principles, codes, guidelines, policies, may anticipate and supplement the law. They are the first steps.

Expanding the instances where spaces for discussion are created is a trend to be promoted: ethical questions must be discussed as and when they arise. However, we must also think of coordinating the principles which could emerge from the different convictions, and consider the work of international organisations which have proved their value in the past, such as the Organisation for Economic Cooperation and Development (OECD) or the Council of Europe, when they enacted specific guidelines or the Convention Nr. 108 for the protection of individuals with regard to automatic processing of personal data.[27] The work which has been done in the field of the protection of individual liberties and privacy could be usefully followed up by similarly important work on the ethical issues we are facing today.

Conclusion from our IFIP Experience

The first 'lesson' we could derive from our experience is that to draft an international code, be it European, does not seem to be a realistic goal. The reason which is often given is the impossibility of enforcing it. But there is also another one, which in our view is at least as important. A code has several functions one of which is to make people discuss ethical issues, as long as a time and a place are specifically allocated in the life of the association. This means that to be fruitful the discussion must interpret the rules and implement them in specific political, legal, economic, social, and cultural environments. The role of any international body should, in our view, be to help and support local constituencies in taking their own responsibility.

Moreover, as we have said, codes are very often quite short, between two and four A4 pages long. In a way this is good, because if they were too lengthy, they would be ignored, or if they were too detailed, they would become obsolete very quickly. There is a need

[27] Council of Europe, *Explanatory Report on the Convention for the Protection of Individuals with Regard to Automatic Processing of Personal Data*, Convention opened for Signature on 28 January 1981, Strasbourg 1981. OECD, *Recommendation of the Council Concerning Guidelines Governing the Protection of Privacy and Transborder Flows of Personal Data*, 23 September 1980, OECD, Paris, Acts of the Organisation, 1982, Volume 20, pp. 535ff. See also, OECD, *Recommendation of the Council Concerning Guidelines for the Security of Information Systems*, Paris, 1992, OECD/GD (92)190.

then, to permanently elaborate on and discuss emerging new problems and new issues to discern the ethical attitude and behaviour necessary to be adopted. Again, the best place for this is the local constituency. Let us not deprive discussion groups of their right to discuss!

If we had to advise anybody in writing or updating a code we would suggest they:

1. identify the general and specific issues at stake in the profession, but also in the social and economic environment; to try also to define a hierarchy as well as a frequency of the issues;
2. raise some simple and unavoidable questions such as: 'Whom do we serve?' (the public, organisations – mainly clients-users – oneself / the profession / computer society, or...?) 'For what, for what good or benefit do we serve?', 'What is the proper decision-making relationship between our profession and the people we serve, as well as between our profession and the purpose we pursue and strive towards?' We have noticed that some codes have arranged their statements according to the target public (CIPS: Canadian Information Processing Society, BCS: British Computer Society, NZCS: New Zealand Computer Society). Others are still mixing the ethical imperatives and the people being served (ACM: Association for Computing Machinery, USA, IEEE: The Institute of Electrical and Electronics Engineers or GI: Gesellschaft für Informatik, Germany);
3. make clear the ethical principles which support specific code provisions;[28]
4. consider the provisions which may meet the requirements of the situation (1.) and which could meet the questions (2.). We give again here the 'fields of reference' which have been considered by at least one third of the codes we have examined:
   - respect for the interests or rights of the people involved, for the prestige of the profession, for the interests or rights of the public, for the health and welfare of the public, and for the quality of life;
   - conscientiousness and honesty, acceptance of responsibility and integrity, respect for requirements or contracts or

[28] The 1992 Code of the ACM (Association for Computing Machinery, USA) makes the distinction between 'General Moral Imperatives' (Title 1), 'More Specific Professional Responsibilities' (Title 2), 'Organizational Leadership Imperatives' (Title 3) and 'Compliance with the Code' (Title 4).

agreements, conscientious work, professional development and training, competence, effectiveness and work quality;
- confidentiality, privacy in general and respect for property rights;
- flow of information to involved parties, and information to the public;
- respect for the code, for the law, and for IT and professional standards.

5. make members of the association participate, as well as the public, in the elaboration of the code or its updating: the larger the participation, the more chance the code has of being accepted;
6. give the code wide publicity: this is a condition *sine qua non* for avoiding the criticism which self-regulation faces today; it also seems to us that publicity is the only way to make the complaint procedure known to different parties; this also means that this complaint procedure must be included somewhere in the code itself or at least that the by-law be indicated and referred to;
7. open a space for discussion where the ethical question is not obliterated and the ethical debate is open and made lively, and where more specialised questions can emerge and have significant consideration;
8. collect cases – we insist real cases as opposed to the fictitious ones which are still circulating either in handbooks or on the web!

In our view, the goal is not to have a code as such, but starting from it, or from another similar document, to stimulate the debate in the association which enacted it. More and more contemporary choices in research and technology raise ethical issues: enhancing the quality of the ethical decision-making seems a target not to miss. Scientists, researchers, engineers and practitioners may help in improving the awareness of hidden issues.

Annex

1. Within IFIP National Member Societies: 21 Codes for 13 National Societies

- ACS (Australian Computer Society, Australia): ACS Code of Ethics
- AICA (Associazione Italiana per l'Informatica ed il Calcolo Automatico, Italy): Codice di Condotta Professionale dei Soci Ordinari AICA
- BCS (British Computer Society, UK): BCS Code of Conduct: Rules of Professional Conduct (1992), BCS Code of Practice (1978)
- CIPS (Canadian Information Processing Society, Canada): CIPS Code of Ethics and Standards of Conduct (1985)
- CSI (Computer Society of India, India): CSI Code of Ethics (1993)
- CSSA (Computer Society of South Africa, South Africa): CSSA Code of Conduct (1988)
- CSZ (Computer Society of Zimbabwe, Zimbabwe): The CSZ Code of Ethics for Institutional Members (1992), The CSZ Code of Ethics for all Individual Members (1992), The CSZ Code of Professional Conduct for Individual Corporate Members (1992), The CSZ Code of Professional Conduct for Registered Consultants (1992), The CSZ Training Accreditation Code of Practice (1992)
- FOCUS (Federation On Computing in the United States, USA)
  - ACM (Association for Computing Machinery, USA): ACM Code of Ethics and Professional Conduct (1992)
  - IEEE (The Institute of Electrical and Electronics Engineers, Inc., USA): IEEE Code of Ethics (1990)
- GI (Gesellschaft für Informatik, Germany): Ethical Guidelines of the GI (1994)
- ICS (Irish Computer Society, Ireland): ICS Code of Professional Conduct (1994)
- NZCS (New Zealand Computer Society, Inc., New Zealand): NZCS Code of Ethics and Professional Conduct (1978)
- SCS (Singapore Computer Society, Singapore): SCS Professional Code of Conduct

2. Within IFIP Affiliate Member Societies: 3 Codes for 2 Regional Societies

- CEPIS (Council of European Professional Informatics Societies, Europe): CEPIS Code of Professional Conduct
- SEARCC (South East Asia Regional Computer Confederation, South East Asia): SEARCC Code of Ethics, and SEARCC General Guidelines for the Preparation of Codes of Ethics for Members

3. From other Computer Societies: 6 Codes for 5 Societies

- ASIS (American Society for Information Science, USA): ASIS Code of Ethics for Information Professionals (current draft 1992)
- CPSR (Computer Professionals for Social Responsibility and Privacy International, International + USA): CPSR Code of Fair Information Practices (privacy)
- JISA (Japan Information Service Industry Association, Japan): JISA Code of Ethics and Professional Conduct
- VRI (Nederlandse Vereniging van Registerinformatici, The Netherlands): VRI Code of Ethics
- IPAK (Information Professional Association of Korea, Korea): IPAK Code of Ethics and IPAK Standards of Conduct